GROUP ART UNIT: 1612
APPEAL NO. _____

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF APPEALS AND INTERFERENCES

APPEAL BRIEF

In re the Application of Richard Martin Jacobson, et al.

Filed August 21, 2003

Serial No. 10/645,431

For

METHOD TO INHIBIT ETHYLENE RESPONSES IN PLANTS

Thomas D. Rogerson
Attorney for Appellants

Sabiha Naim Qazi, *Examiner*

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Transmittal Form
Fee Transmittal Form

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Mail Stop Appeal Brief - Patents

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

DN A01187A

In re application of: Richard Martin Jacobson, et.al.

Serial No.: 10/645,431 : Group Art Unit: 1612

Filed: 08/21/2003 : Examiner: Qazi, Sabiha Naim

For: Method to Inhibit Ethylene Responses in Plants

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

APPEAL BRIEF

This is an appeal from the Final Rejection dated February 19, 2010 finally rejecting claim 1. Claim 1 is being appealed, claims 2 through 10 having been withdrawn from consideration as being subject to a restriction requirement and claim 11 having been cancelled. Elected species is Benzene, 1-chloro-4-cyclopropenylmethyl. The appealed claim is set out in Appendix J. Appellants filed a Notice of Appeal pursuant to 37 C.F.R. § 1.191 on May 19, 2010

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(B) Table of Contents

(C) Real Party In Interest

The owner of the present application and the invention contained therein is ROHM AND HAAS COMPANY.

(D) Related Appeals, Interferences or Judicial Proceedings

No appeals, interferences or judicial proceedings are known to Appellants, the Appellants' legal representative, or the assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(E) Status Of Claims

The status of the claims is as follows:

Claims pending: 1 - 10

Allowed claims: none

Claims objected to: none

Claims canceled: 11

Claims rejected: 1

Claims on appeal: 1

Claims withdrawn from consideration by the Examiner: 2 through 10.

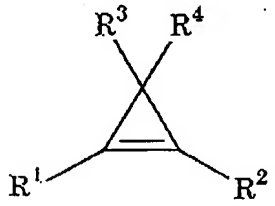
(F) Status Of Amendments

No amendments were filed subsequent to the Final Rejection.

(G) Summary of Claimed Subject Matter

Claim 1

A compound of the formula:



[Page 1, line 27 to Page 2, line 1; Page 10, lines 6-7]

wherein:

a) R^2, R^3, and R^4 are H or R^1, R^2, and R^4 are H and the other of R^1 and R^3 are selected from a group of the formula: **[Page 6, lines 16-18]**

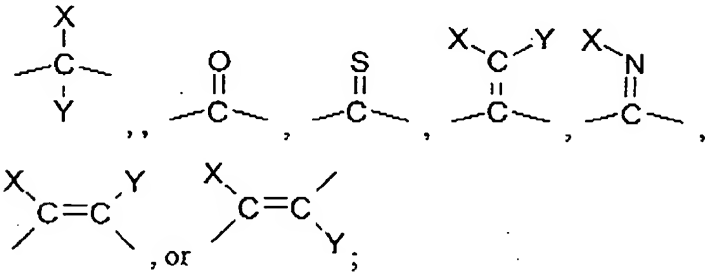
$-(L)_n-Z$ **[Page 2, line 5; Page 10, line 11]**

wherein:

i) n is an integer from 1 to 12; **[Page 2, line 7; Page 10, line 13]**

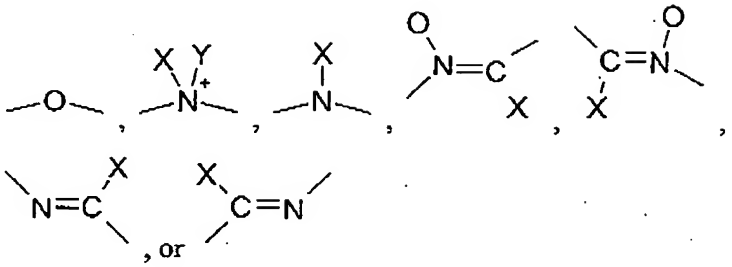
ii) each L is independently selected from a member of the group D1, D2, E, or J wherein: **[Page 2, lines 8-9; Page 10, lines 14-15]**

D1 is of the formula:



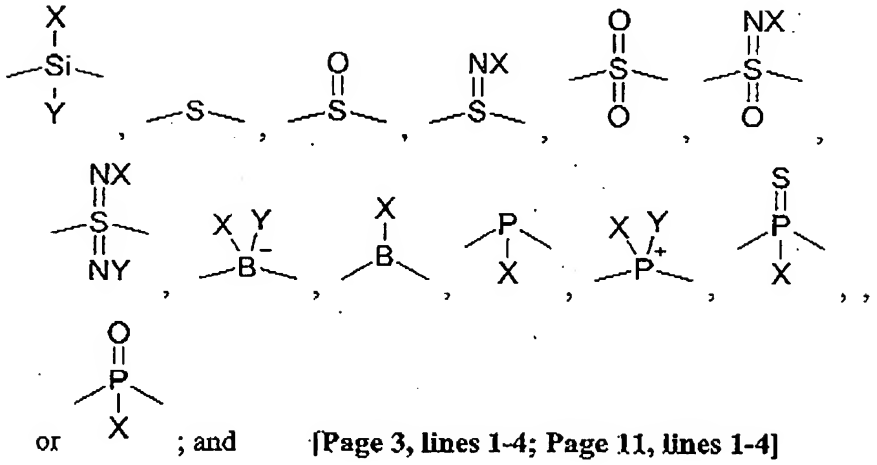
[Page 2, lines 10-12; Page 10, lines 16-18]

D2 is of the formula:



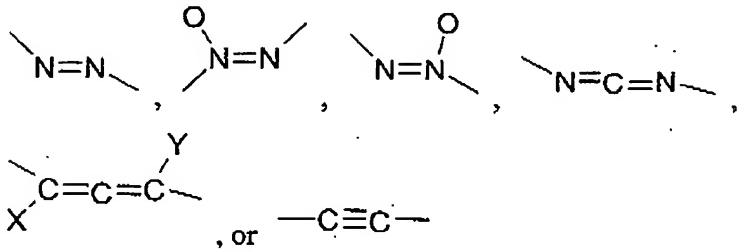
[Page 2, lines 13-16; Page 10, lines 20-22]

E is of the formula:



[Page 3, lines 1-4; Page 11, lines 1-4]

J is of the formula:



[Page 3, lines 5-7; Page 11, lines 5-7]

wherein:

A) each X and Y is independently a group of the formula:

$-(L)_m-Z$; [Page 3, lines 9-10; Page 11, lines 9-10]

and

B) m is an integer from 0 to 8; and

[Page 3, line 12; Page 11, line 12]

C) no more than two D2 or E groups are adjacent to each other and no J groups are adjacent to each other;

[Page 3, lines 13-14; Page 11, lines 13-14]

iii) each Z is independently selected from:

A) hydrogen, halo, cyano, nitro, nitroso, azido, chlorate, bromate, iodate, isocyanato, isocyanido, isothiocyanato, pentafluorothio, or

[Page 3, lines 15-17; Page 11, lines 15-17]

B) a group G, wherein G is an unsubstituted or substituted; unsaturated, partially saturated, or saturated; monocyclic, bicyclic, tricyclic, or fused; 4 to 14 membered carbocyclic or heterocyclic ring system wherein;

[Page 3, lines 18-23; Page 4, lines 18-23]

1) when the ring system contains a 4 membered heterocyclic ring, the heterocyclic ring contains 1 heteroatom;

[Page 3, lines 22-23; Page 11, lines 22-23]

2) when the ring system contains a 5, or more, membered heterocyclic ring or a polycyclic heterocyclic ring, the heterocyclic or polycyclic heterocyclic ring contains from 1 to 4 heteroatoms; **[Page 4, lines 1-3; Page 12, lines 1-3]**

3) each heteroatom is independently selected from N, O, and S;

[Page 4, line 4; Page 12, line 4]

4) the number of substituents is from 0 to 5 and each substituent is independently selected from X;

[Page 4, lines 5-6; Page 12, lines 5-6]

b) the total number of non-hydrogen atoms in each compound is 50 or less; and **[Page 4, line 7; Page 12, line 7]**

c) the total number of heteroatoms in $-(L)_n-Z$ is from 0 to 4;

[Page 4, line 8; Page 12, line 8]

and

d) R^1 or R^3 contains at least one group G;

[Page 4, line 10; Page 12, line 10]

and its enantiomers, stereoisomers, salts, and mixtures thereof;

[Page 4, line 15]

or a composition thereof; **[Page 4, line 16; Page 12, line 16]**

provided that:

a) R^1 is other than phenylsulfonyl, phenylthioethyl, diphenylhydroxymethyl, benzo[g]quinolin-7-ol-1-methyl, a malonate derivative, a substituted 3-aminocyclohexenone, a dialkoxybenzylaminocarbonyl;

[Page 12, lines 19-20]

and

b) R^3 is other than 2-phenyl-ethenyl, phenylthio, (4-bromo-2-methylphenyl)carbamic acid N-carbonyl, (4-bromo-2-methylphenyl)carbamic acid ethyl ester N-carbonyl, a malonate derivative, aryloxy, or a dialkoxybenzylaminecarbonyl.

[Page 12, lines 22-25]

(H) Grounds of Rejection to be Reviewed on Appeal

Claim 1 is rejected under 35 USC §112(1) in that the amendments made to disclaim the compounds disclosed by Baird, *Tetrahetron Letters*, Vol. 36, No. 52, pp. 9541-9542 (1995) are considered new matter and are a negative limitation to the claim.

Claim 1 is rejected under 35 USC §112, First Paragraph, in that the Specification does not reasonably provide enablement for all the compounds as claimed.

Claim 1 is rejected under 35 USC §103(a) as being unpatentable over Sisler, E. (US 6,194,350 and 6,365,549), Daly, et.al. (US 6,017,849), and Minkin, et.al. *Journal of Molecular Structure*, 398-399 (1997) pp. 237-253 in that each of the refcrences teaches cyclopropene derivatives and methods of blocking ethylene receptors in plants.

Claim 1 is rejected under 35 USC §103(a) ("Second Rejection") over Baird, et.al., *Tetrahedron Letters*, Vol. 36, No. 52, pp. 9541-9542 (1995) in that Baird teaches an unusual rearrangement of 1-allyl and 1-benzylcyclopropenes.

Claim 1 is rejected under 35 USC §102(b) as being anticipated by Baird (see above) which discloses 1-butyl-2-(3-methylbut-2-enyl)cyclopropene and 2-(4'-methoxybenzyl)-1-pentylcyclpropene.

(I) Argument

Regarding Rejection under 35 USC §112(1)

Claim 1 is rejected under 35 USC §112(1) in that the amendments made to disclaim the compounds disclosed by Baird, *Tetrahetron Letters*, Vol. 36, No. 52, pp. 9541-9542 (1995) are considered new matter and are a negative limitation to the claim.

The amendments to Claim 1 made in the response dated October 13, 2009 have made this rejection moot in that the compounds disclosed in Baird are no longer within the scope of the claims. The amendments did not introduce new matter in that the amendments were fully supported in the Specification as one of the preferred embodiments. The amendment to Claim 1 paragraph a) provides that only one of the substituent groups on the cyclopropene ring is other than hydrogen. This amendment is fully supported in the specification, page 6, lines 16-18. The compounds disclosed by Baird all have at least two non-hydrogen groups on the cyclopropene ring. Therefore, this amendment neither introduces new matter nor is it a negative limitation in the claim. Appellants, therefore, respectfully request that this rejection be reversed.

Regarding Rejection under 35 USC §112(1), Scope of Enablement

Claim 1 is rejected under 35 USC §112, First Paragraph, in that the Specification does not reasonably provide enablement for all the compounds as claimed. The factors to be considered in determining whether a disclosure meets the enablement requirement are those of *In re Wands*, 8 USPQ2nd 1400 (Fed. Cir. 1988) specifically: The nature of the invention; The predictability or unpredictability of the art; The breadth of the claims; The amount of direction of guidance presented; The presence or absence of working examples; and The quantity of experimentation necessary.

Appellants have included sufficient examples of preparation of the claimed compounds that one skilled in the organic synthesis art would be able to prepare any one of the claimed compounds without undue experimentation. The Specification provides specific detailed synthesis examples of cyclopropenes monosubstitued with a "G"

containing group (see compounds numbered 1-5, 9, 10, 12-15, 36, 44, 47, 53, 55-59). In addition, the Specification provides detailed synthesis examples of other cyclopropenes substituted with a "G" containing group (see compounds 6-8, 11, 37-39, 41, 45, 46, 60) as well as descriptions of similar compounds in Table 1. The exemplified compounds include a variety of both carbocyclic and heterocyclic "G" groups, wherein the heterocycle contains one or more oxygen, nitrogen, and sulfur.

Furthermore, Appellants contend that each of the *Wands* factors, in fact, have been met by the disclosure of the instant application. Specifically:

(1) The nature of the Invention - Although the presently claimed invention is drawn to cyclopropene compounds which contains a large Markush group of substitutents, this group of substituents is, in fact, not as broad as it may first appear. All of the claimed compounds are monosubstituted and must include a substituent group that contains a carbocyclic or heterocyclic ring. This group of substitutents provides cyclopropene compounds with ethylene inhibitory activity that were not previously disclosed in the art. Appellants are entitled to claim the full scope of those new compounds.

(2) Predictability - It is known within the art surrounding cyclopropene compounds that certain of them may have ethylene inhibition activity when contacted with plants or plant products. Many of these effects are documented in the references cited in Appellants' Information Disclosure Statements. What was not known from those prior disclosures was the breadth of substituent groups which would provide the cyclopropene compounds with this activity. Appellants have discovered that the scope of active compounds goes far beyond those disclosed in the cited references. Appellants are not relying on a single, or a few, species in which to base the breadth of their claims. Rather, Appellants have shown through the eighty-six example compounds which were synthesized and tested (fifty-six of which now fall within the scope of claim 1 as now amended) that a wide variety of compounds with widely varying "G"-group containing substituents are active. These example compounds support the fact that within classes of substituent groups one skilled in the art can predict that certain compounds which are members of those classes will be active. In addition, Appellants have provided detailed synthesis examples for twenty claimed compounds and detailed synthesis examples for eleven similar

compounds as well as descriptions of general synthetic methods which are applicable to preparation of the claimed compounds (see the Specification, page 12, line 27 to page 16, line 2 and the Examples, page 16 to page 64). One skilled in the art of synthetic organic chemistry would be able to predict which synthesis methods would be appropriate to prepare any one of the claimed compounds and then prepare such compounds, without undue experimentation. Appellants are not required to present any examples at all, and the C.C.P.A. has stated that the claims may be supported "either by the use of illustrative examples or by broad terminology." *In re Marzocchi*, 439 F.2d at 223 (C.C.P.A. 1971). Appellants respectfully submit that the teachings of their application provide the required support for the claims.

(3) Breadth of Claims - Admittedly, the claim of the instant application is broad. However, Appellants have provided a large number of example compounds (eighty-six, fifty-six of which fall within the scope of claim 1 as now amended) which: "...differ radically in their properties..." and which are demonstrated in the test results in the Specification, Table 3, pp 70-72 to "accomplish the desired result." These results amply demonstrate that the compounds included within the scope of the claim can be synthesized and are capable of accomplishing the desired results.

(4) Amount of Direction or Guidance Presented - The Office Action in states that there is no guidance or direction presented to enable one skilled in the art to make any one of the thousands of cyclopropene compounds as claimed. As noted above, there are fifty-six working examples of synthesized compounds which fall within the scope of claim 1 and an additional thirty which are described. Extensive methods of synthesis are provided in the Specification, page 12, line 27 to page 16, line 2 and in the Examples, page 16 to page 64. With the information provided, one skilled in the art of organic synthesis would be able to develop specific methods to synthesize any one of the claimed compounds without undue experimentation. One skilled in the art of organic synthesis would also be well schooled in obtaining, or synthesizing, required starting materials to utilize in the cyclopropene syntheses. All of this can be accomplished without undue experimentation on the part of the chemist.

(5) Presence or Absence of Working Examples - The Office Action states that there are no examples presented to enable one skilled in the art to make any one of the thousands of cyclopropene compounds as claimed. Again, as noted above, there are presented in the specification a reasonable number of working examples and references to a large number of synthesis methods. The working examples include a large number of substituent groups which contain carbocyclic and heterocyclic ring groups, each of which show the desired biological activity. These are sufficient to enable one skilled in the art to synthesize the claimed compounds with the expectation that they will provide the desired biological activity.

(6) The Quantity of Experimentation Necessary - The Office Action states that there is no guidance and/or direction provided by the Appellants for the wide variety of compounds and their preparation and method of use. However, as noted above, eighty-six example compounds are provided with the results of their use. Appellants are now only claiming a limited class of those compouds, those with only a single substitutent group containing a "G" group. These data are presented in the synthesis examples (Specification, page 12, line 27 to page 16, line 2 and in the Examples, page 16 to page 64, and the test data presented on pages 69-72). The Office Action does not present facts to support the assertion that "undue experimentation" would be required to practice the present invention. Rejection of claims as being non-enabled requires "the Patent Office, whenever a rejection on this basis is made, to explain why it doubts the truth or accuracy of any statement in a supporting disclosure and to back up assertions of its own with acceptable evidence or reasoning" refuting the asserted teaching of the invention. *In re Marzocchi*, 439 F.2d 220, 224 (C.C.P.A. 1971). The Office has not met its burden to provide such evidence or reasoning. "However, specific technical reasons are always required." M.P.E.P. § 2164.04. The rejection merely states that there are not "sufficient working examples" to support the claims. Appellants are not required to present any examples at all, and the C.C.P.A. has stated that the claims may be supported "either by the use of illustrative examples or by broad terminology." *In re Marzocchi*, 439 F.2d at 223. Appellants respectfully submit that the broad teachings of their application, the broadly described synthesis methods, and the extensive number of synthesis examples

provide the required support for the claim. The mere assertion that there is not "a sufficient number of compounds to support the relatively broad claims" has been rejected previously by the Board of Patent Appeals and Interferences, which reversed such an enablement rejection as "not supported by evidence, facts or sound scientific reasoning." *Ex parte Reese*, 40 U.S.P.Q.2d 1221 (B.P.A.I. 1996).

Appellants, respectfully request that this rejection be reversed.

Regarding Rejection under 35 USC §103(a)

Claim 1 is rejected under 35 USC §103(a) as being unpatentable over Sisler, E. ("Sisler", US 6,194,350 ("'350") and 6,365,549 ("'549")), Daly, et.al. ("Daly", US 6,017,849 ("'849")), and Minkin, et.al. ("Minkin"), *Journal of Molecular Structure*, 398-399 (1997) pp. 237-253 in that each of the references teaches cyclopropene derivatives and methods of blocking ethylene receptors in plants.

The Office Action is correct in that in the broadest sense, each of the cited references teaches cyclopropene derivatives. However, only Sisler and Daly teach methods of blocking the ethylene response in plants. Even though Sisler teaches extensive substitution on the cyclopropene ring, those substitutents are, in fact, quite limited in scope. Sisler teaches that the substituent groups are **linear or branched chain**...C_5 - C_{20} alkyl, alkenyl, or alkynyl...and may include compounds in which one or more of the carbons is replaced by heteroatoms...or where such chains include halogen, amino, alkoxy, carboxy, alkoxycarbonyl, or hydroxy substituents (see Sisler '350, col. 2, lines 36-44 and '549, col. 2, lines 57-67). Daly teaches similar substituents to those taught by Sisler, except that Daly's substituent groups are much smaller in size and even more limited in scope (i.e. C_1 - C_4 alkyl, hydroxy, halogen, C_1 - C_4 alkoxy, amino, and carboxy, See Daly, col. 6, lines 30-32). Neither Sisler nor Daly, either alone or in combination, teach, disclose, or suggest substituent groups which contain Appellants' carbocyclic or heterocyclic ring systems. In fact, the disclosures of Sisler and Daly teach away from substituents containing complex groups such as cyclic groups. Both Sisler and Daly specifically teach that linear chains are preferred (see, for example, Sisler '350, col. 2, lines 45-46: "Alkyl groups of the present invention are preferably linear and

saturated." and Daly, col. 6, lines37-41: "The preferred compounds capable of inhibiting the ethylene response in plants ...are cyclopropene and dimethylcyclopropene."). Thus, Sisler and Daly, in combination, direct one skilled in the art away from Appellants' carbocyclic and heterocyclic rings and toward linear and saturated substituent groups.

Minkin presents a completely different problem and solution from those addressed by Sisler and Daly. Sisler and Daly relate to the use of cyclopropenes to inhibit the ethylene response in plants while Minkin relates to computational modeling of the mechanisms of circumambulatory rearrangements of main-group migrants (that is, substituents) in the cyclopropene ring (see the Abstract). There is no disclosure, teaching, or suggestion of biological activity of any kind in Minkin. Minkin is concerned with the various mechanistic factors related to substituent group migrations in the cyclopropene ring and comparison of those factors with substituent group migrations in cyclopentadienes (see the Abstract; page 238, first full paragraph; page 251, Conclusions). In addition, Minkin does not actually disclose the synthsis of any compound discussed. Rather, the reference is limited to computational modeling of hypothetical compounds (see the Abstract; page 238, first column, line 22 to end of paragraph; page 238, Methods; page 239 first column, lines 8-11; page 243, first column, lines 18-21; page 247 first column, lines 4-7 and second column). Therefore, Minkin should not be considered as being an enabling reference as it does not describe the synthesis of any particular cyclopropene nor their use for any purpose other than computational, mechanistic studies. It is Appellants' position that Minkin is not a valid reference for obviousness, either alone or in combination with '350, '549, and/or '849. Minkin does disclose a theoretical cyclopropene substituted with a phenylthio group. Because the problems addressed by Minkin are different than those addressed by Sisler and Daly, the solutions to the problems are different, and the results obtained are different. Thus, there would be no motivation to combine Minkin with Sisler, Daly, or both. One skilled in the art, with knowledge of Minkin, Sisler, and Daly, would not be directed to the synthesis of cyclopropenes containing carbocyclic and/or heterocyclic rings in light of the preferences in Sisler and Daly which specifically prefer linear, saturated substituents.

One skilled in the art would conclude, therefore, that there is no disclosure, teaching, or suggestion in Sisler, Daly, or Minkin, either alone or in combination, that would motivate such a person to synthesize cyclopropenes substitued with substitutent groups containing carbocyclic and/or heterocyclic rings with the expectation that such compounds would provide inhibition of the ethylene response in plants. Appellants, therefore, respectfully request that this rejection be reversed.

(Note: The Final Rejection requested information relating to compounds disclaimed in the provisos in claim 1. This information was provided in the Response dated October 13, 2009, pages 13-14.)

Regarding Rejection under 35 USC §103(a) - Second Rejection

Claim 1 is rejected under 35 USC §103(a) over Baird, et.al. ("Baird"), *Tetrahedron Letters*, Vol. 36, No. 52, pp. 9541-9542 (1995) in that Baird teaches an unusual rearrangement of 1-allyl and 1-benzylcyclopropenes.

Baird is much like Minkin (see above) in that Baird is directed toward studies of rearrangements in certain specifically substitued cyclopropene rings (i.e. those with allyl and benzyl substituents). The purpose of Baird's studies is to provide a method to protect the strained cyclopropene ring (see p. 9541, first paragraph) and as a possible route to prepare 1,2-disubstituted bicyclo[1.1.0]butanes (see p. 9542, end of last paragraph). There is no disclosure, teaching, or suggestion in Baird that would motivate one of ordinary skill in the art to prepare allyl and/or benzyl substituted cyclopropenes with the expectation of obtaining a compound that would inhibit the effect of ethylene on plants. First, there is no disclosure in Baird of monosubstituted cyclopropenes. Second, there is no disclosure, teaching, or suggestion in Baird of any biological activity of any kind with respect to the compounds disclosed. Appellants, therefore, respectfully request that this rejection be reversed.

Conclusion regarding 35 USC §103(a) rejections

There is no disclosure, teaching, or suggestion in any of the cited references (Sisler, Daly, Minkin, and Baird) either alone or in combination, that would make the subject matter defined by the instant claims obvious to one skilled in the art of organic synthesis and ethylene response inhibition in plants. Sisler and Daly both disclose certain cyclopropenes with limited substituent groups, which are inhibitors of the ethylene response in plants. However, neither Sisler nor Daly disclose cyclopropenes in which the substituent groups include a carbocyclic or heterocyclic ring. In fact, each of Sisler and Daly teach that short chains that are linear and saturated are preferred. This would suggest to one skilled in the art that substituent groups with carbocyclic or heterocyclic rings (both much larger in size and more complex in structure than corresponding alkyl chains) would not exhibit the desired ethylene inhibition activity. Appellants' data clearly, and surprisingly, show that this is not the case. Minkin and Baird address a completely different problem than that addressed by Sisler and Daly. Both Minkin and Baird relate to studies of rearrangements of substituent groups around a cyclopropene ring. There is no disclosure, teaching, or suggestion in either Minkin or Baird that any of the disclosed cyclopropenes would be useful as ethylene inhibitory compounds or, in fact, that they have any biological activity at all.

Regarding Rejection under 35 USC §102(b)

Claim 1 is rejected under 35 USC §102(b) as being anticipated by Baird (see above) which discloses 1-butyl-2-(3-methylbut-2-enyl)cyclopropene and 2-(4'-methoxybenzyl)-1-pentylcyclpropene.

As amended in the Response dated October 13, 2010, none of the compounds disclosed in Baird are included within the scope of claim 1. Specifically, claim 1 is now limited to monosubstituted cyclopropenes in which the substituent includes at least one carbocyclic or heterocyclic ring. Appellants, therefore, respectfully request that this rejection be reversed.

CONCLUSION

Based on the foregoing, Appellants respectfully submit that: (a) the amendments made to claim 1 to disclaim the compounds disclosed by Baird are not new matter nor a negative limitation to the claim; (b) the Specification reasonably provides enablement for all the compounds claimed; (c) claim 1 is patentable over Sisler, Daly, and Minkin under 35 USC §103(a) in that it would not have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Sisler, Daly, and Minkin; (d) claim 1 is patentable over Baird under 35 USC §103(a) in that it would not have been obvious to a person of ordinary skill in the art at the time the invention was made to adopt the teachings of Baird related to rearrangements of polysubstituted cyclopropenes to Appellants' monosubstituted cyclopropenes with any expectation of obtaining compounds with the desired biological activity; and (e) claim 1 is patentable over Baird under 35 USC §102(b) in that the compounds disclosed in Baird do not fall within the scope of compounds now claimed by Appellants.

As a result, the pending claims are currently in condition for allowance. Appellants respectfully request the Board to pass the pending claims to allowance.

Enclosed herewith, Appellants have filed a Certificate of Transmission/Mailing to establish the timely filing of this Appeal Brief. The Commissioner is hereby authorized to charge any additional fee which may be required, or to credit any overpayments to Deposit Account 18-1850.

Respectfully submitted,

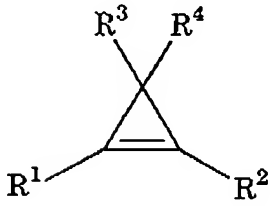
Thomas D. Rogerson

Thomas D. Rogerson
Attorney for Appellants
Registration No. 38,602
Telephone: 215-619-1569

Rohm and Haas Company
100 Independence Mall West
Philadelphia, PA 19106-2399
Date: July 19, 2010

(J) Claims Appendix

1. A compound of the formula:



wherein:

a) R^2, R^3, and R^4 are H or R^1, R^2, and R^4 are H and the other of R^1 and R^3 are selected from a group of the formula:

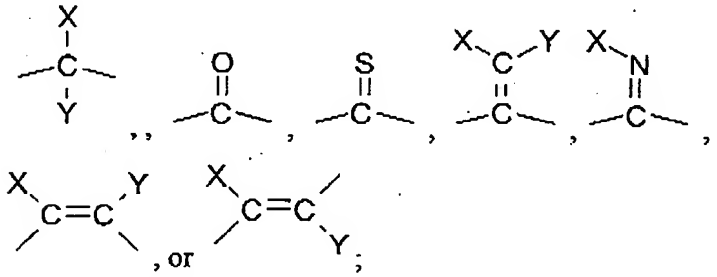
$$-(L)_n-Z$$

wherein:

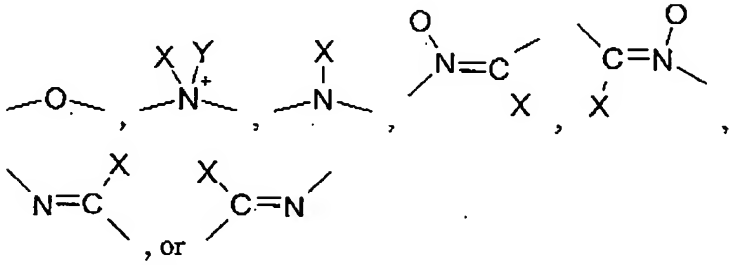
i) n is an integer from 1 to 12;

ii) each L is independently selected from a member of the group D1, D2, E, or J wherein:

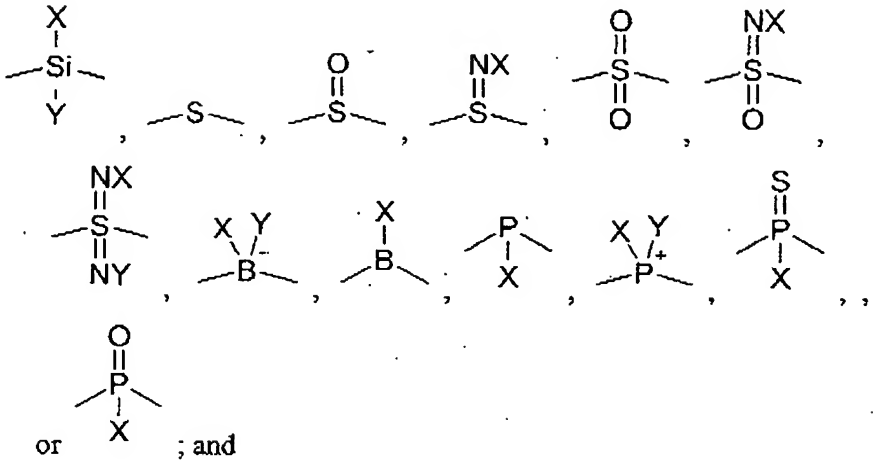
D1 is of the formula:



D2 is of the formula:

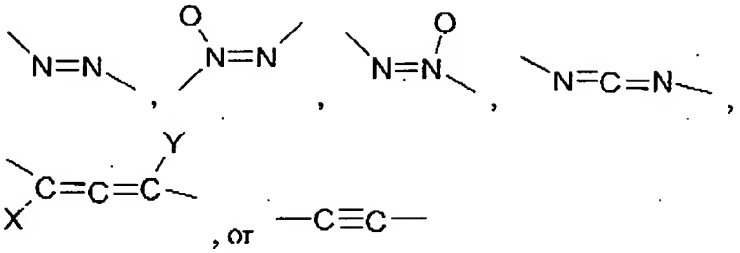


E is of the formula:



or ; and

J is of the formula:



wherein:

A) each X and Y is independently a group of the formula:

$$-(L)_m-Z;$$

and

B) m is an integer from 0 to 8; and

C) no more than two D2 or E groups are adjacent to each other and no J groups are adjacent to each other;

iii) each Z is independently selected from:

A) hydrogen, halo, cyano, nitro, nitroso, azido, chlorate, bromate, iodate, isocyanato, isocyanido, isothiocyanato, pentafluorothio, or

B) a group G, wherein G is an unsubstituted or substituted; unsaturated, partially saturated, or saturated; monocyclic, bicyclic, tricyclic, or fused; 4 to 14 membered carbocyclic or heterocyclic ring system wherein;

1) when the ring system contains a 4 membered heterocyclic ring, the heterocyclic ring contains 1 heteroatom;
2) when the ring system contains a 5, or more, membered heterocyclic ring or a polycyclic heterocyclic ring, the heterocyclic or polycyclic heterocyclic ring contains from 1 to 4 heteroatoms;
3) each heteroatom is independently selected from N, O, and S;
4) the number of substituents is from 0 to 5 and each substituent is independently selected from X;

b) the total number of non-hydrogen atoms in each compound is 50 or less; and

c) the total number of heteroatoms in $-(L)_n-Z$ is from 0 to 4; and

d) R^1 or R^3 contains at least one group G;

and its enantiomers, stereoisomers, salts, and mixtures thereof;

or a composition thereof;

provided that:

a) R^1 is other than phenylsulfonyl, phenylthioethyl, diphenylhydroxymethyl, benzo[g]quinolin-7-ol-1-methyl, a malonate derivative, a substituted 3-aminocyclohexenone, a dialkoxybenzylaminocarbonyl; and

b) R^3 is other than 2-phenyl-ethenyl, phenylthio, (4-bromo-2-methylphenyl)carbamic acid N-carbonyl, (4-bromo-2-methylphenyl)carbamic acid ethyl ester N-carbonyl, a malonate derivative, aryloxy, or a dialkoxybenzylaminecarbonyl.

(K) Evidence Appendix

No evidence was submitted during prosecution.

(L) Related Proceedings Appendix

There are no related proceedings.